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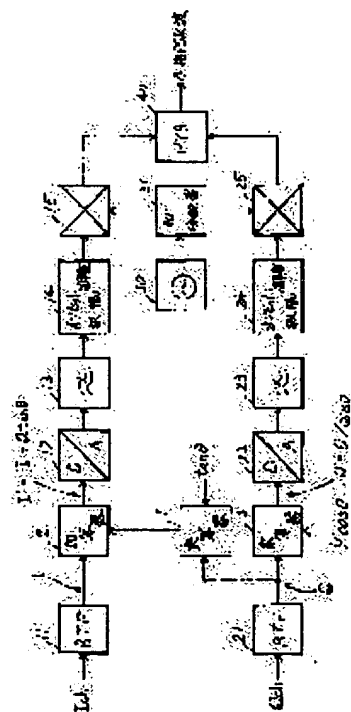
(72)Inventor : ONO MITSUHIRO  
KAWASAKI TOSHIO

## (54) QUADRATURE MODULATOR

### (57)Abstract:

**PURPOSE:** To provide the quadrature modulator which uses a digital filter on each of the I channel side and the Q channel side but has a small circuitry as the whole.

**CONSTITUTION:** In the quadrature modulator, outputs of I and Q channels which pass filters 11 and 21 are converted by D/A converters 12 and 22 and have harmonic components eliminated by filters 13 and 23 and have amplitudes uniformized by adjusters 14 and 24, and the output of a local oscillator 30 is distributed into two signals having 90° phase difference by a distributor 31, and these two signals have phases compensated by a means 32, and outputs of adjusters 14 and 24 are multiplied by output signals of the means 32 in multipliers 15 and 25 and are synthesized by a means 40. Phase compensation is stopped and only distribution is performed in this quadrature modulator; and if phase angles of two outputs I and Q are deviated from 90 by an angle  $\theta$ , a value resulting from addition of an adder 2 between an output  $Q \tan \theta$  obtained by multiplying an output Q of the digital filter 21 by  $\tan \theta$  in a multiplier 1 and the output I of the digital filter 11 is used as an input I' of the D/A converter 12 on the I channel side, and a value obtained by multiplying the output Q of the digital filter 21 by  $1/\cos \theta$  in a multiplier 3 is used as an input Q' of the D/A converter 22 on the Q channel side.



## LEGAL STATUS

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